



TWR-64222

Appendix E Insulation Postfire Data

Final Postflight Hardware Evaluation Report RSRM-29, STS-54

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Prepared for:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
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HARDWARE EVALUATION RSRM-29
(STS-54). APPENDIX E: INSULATION
POSTFIRE DATA Final Report
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Table E-I. RSRM-29B Nozzle-to-Case Joint Performance

DEGREE LOCATION	PREFIRE (INCHES)	POSTFIRE (INCHES)	MDD	CSF	ASF
0.0	5.641	4.755	0.886	5.5	6.4
46.8	5.696	4.930	0.766	6.4	7.4
90.0	5.702	4.800	0.902	5.4	6.3
136.8	5.689	4.978	0.711	6.9	8.0
180.0	5.663	4.355	1.308	3.7	4.3
226.8	5.681	4.678	1.003	4.9	5.7
270.0	5.704	5.012	0.692	7.1	8.2
316.8	5.684	5.010	0.674	7.3	8.4
	MEDIAN 5.687	MEDIAN 4.865	MEDIAN 0.826	MINIMUM 3.7	MINIMUM 4.3

A SAFETY FACTOR OF 2.0 IS REQUIRED

Table E-II. RSRM-29B Aft Field Joint Performance

DEGREE LOCATION	PREFIRE (INCHES)	POSTFIRE (INCHES)	MDD	CSF	ASF
2.0	2.743	2.362	0.381	6.8	7.2
46.0	2.764	2.375	0.389	6.7	7.1
90.0	2.773	2.353	0.420	6.2	6.6
136.0	2.775	2.343	0.432	6.0	6.4
180.0	2.759	2.361	0.398	6.5	6.9
226.0	2.746	2.323	0.423	6.1	6.5
270.0	2.735	2.401	0.334	7.8	8.2
316.0	2.722	2.354	0.368	7.1	7.4
	MEDIAN 2.753	MEDIAN 2.358	MEDIAN 0.394	MINIMUM 6.0	MINIMUM 6.4

A SAFETY FACTOR OF 2.0 IS REQUIRED

Table E-III. RSRM-29B Center Field Joint Performance

DEGREE LOCATION	PREFIRE (INCHES)	POSTFIRE (INCHES)	MDD	CSF	ASF
2.0	2.775	2.562	0.213	12.2	13.0
46.0	2.766	2.567	0.199	13.0	13.9
90.0	2.778	2.603	0.175	14.8	15.9
136.0	2.770	2.615	0.155	16.7	17.9
180.0	2.767	2.591	0.176	14.7	15.7
226.0	2.753	2.587	0.166	15.6	16.6
270.0	2.741	2.606	0.135	19.2	20.3
316.0	2.747	2.566	0.181	14.3	15.2
	MEDIAN 2.767	MEDIAN 2.567	MEDIAN 0.176	MINIMUM 12.2	MINIMUM 13.0

A SAFETY FACTOR OF 2.0 IS REQUIRED

Table E-IV. RSRM-29B Forward Field Joint Performance

DEGREE LOCATION	PREFIRE (INCHES)	POSTFIRE (INCHES)	MDD	CSF	ASF
2.0	2.806	2.625	0.181	14.3	15.5
46.0	2.750	2.581	0.169	15.4	16.3
90.0	2.777	2.567	0.210	12.4	13.2
136.0	2.780	2.563	0.217	12.0	12.8
180.0	2.797	2.557	0.240	10.8	11.7
226.0	2.807	2.573	0.234	11.1	12.0
270.0	2.767	2.562	0.205	12.7	13.5
316.0	2.773	2.606	0.167	15.5	16.6
	MEDIAN 2.779	MEDIAN 2.570	MEDIAN 0.208	MINIMUM 10.8	MINIMUM 11.7

A SAFETY FACTOR OF 2.0 IS REQUIRED

Table E-V. RSRM-29A Aft Dome Insulation Performance

PART NO. 1U76668-02 SERIAL NO. 0000024		PREFIRE MEASUREMENTS INCHES									
STATION (IN)		DEGREE LOCATIONS									
		0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	MIN.	MDT
9.3	5.287	5.252	5.223	5.194	5.286	5.213	5.338	5.286	5.194	5.269	4.900
10.7	5.136	5.087	5.064	5.071	5.072	5.058	5.040	5.034	5.034	5.068	4.700
12.0	4.938	4.874	4.865	4.880	4.893	4.871	4.859	4.854	4.854	4.872	4.500
13.1	4.692	4.634	4.628	4.673	4.671	4.652	4.625	4.606	4.606	4.643	4.300
14.4	4.327	4.323	4.339	4.325	4.374	4.356	4.345	4.301	4.301	4.333	4.100
16.0	4.086	4.056	4.073	4.071	4.091	4.054	4.095	4.069	4.054	4.072	3.780
17.3	3.981	3.976	3.949	3.929	3.959	3.944	3.982	3.961	3.929	3.960	3.560
18.5	3.805	3.804	3.748	3.766	3.798	3.766	3.817	3.761	3.748	3.782	3.360
19.5	3.620	3.657	3.611	3.609	3.648	3.592	3.661	3.622	3.592	3.621	3.150
21.3	3.403	3.414	3.379	3.388	3.380	3.340	3.416	3.385	3.340	3.387	2.940
24.3	3.418	3.410	3.327	3.362	3.353	3.358	3.401	3.363	3.327	3.362	2.940

PART NO. 1U76957-03 SERIAL NO. 0000015		POSTFIRE MEASUREMENTS INCHES									
STATION (IN)		DEGREE LOCATIONS									
		0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	MIN.	MEDIAN
9.3	4.366	4.098	4.424	4.212	4.105	4.318	4.321	4.080	4.080	4.265	
10.7	4.030	4.117	4.129	3.968	3.946	4.129	3.916	3.819	3.819	3.999	
12.0	3.784	3.811	3.920	3.880	3.775	3.763	3.696	3.681	3.681	3.780	
13.1	3.571	3.590	3.789	3.696	3.612	3.608	3.522	3.538	3.522	3.599	
14.4	3.287	3.379	3.499	3.392	3.358	3.366	3.314	3.337	3.287	3.362	
16.0	3.109	3.135	3.250	3.162	3.166	3.160	3.172	3.171	3.109	3.164	
17.3	3.087	3.339	3.172	3.093	3.134	3.142	3.153	3.135	3.087	3.138	
18.5	3.090	3.230	3.133	3.088	3.186	3.078	3.179	3.372	3.078	3.156	
19.5	2.917	3.014	3.028	2.977	3.051	3.007	3.096	3.019	2.917	3.016	
21.3	2.751	2.657	2.739	2.692	2.765	2.713	2.774	2.611	2.611	2.726	
24.3	2.639	2.598	2.529	2.498	2.612	2.598	2.555	2.533	2.498	2.577	

Table E-V. RSRM-29A Aft Dome Insulation Performance (Cont.)

STATION (IN)	MATERIAL DECOMPOSITION DEPTH (MDD) INCHES										DESIGN M+3S
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	DEGREE LOCATIONS MEDIAN	MAX.	
9.3	0.921	1.154	0.799	0.982	1.181	0.895	1.017	1.206	0.999	1.206	2.560
10.7	1.106	0.970	0.935	1.103	1.126	0.929	1.124	1.215	1.105	1.215	2.261
12.0	1.154	1.063	0.945	1.000	1.118	1.108	1.163	1.173	1.113	1.173	2.208
13.1	1.121	1.044	0.839	0.977	1.059	1.044	1.103	1.068	1.051	1.121	2.218
14.4	1.040	0.944	0.840	0.933	1.016	0.990	1.031	0.964	0.977	1.040	2.225
16.0	0.977	0.921	0.823	0.909	0.925	0.894	0.923	0.898	0.915	0.977	1.980
17.3	0.894	0.637	0.777	0.836	0.825	0.802	0.829	0.826	0.826	0.894	1.675
18.5	0.715	0.574	0.615	0.678	0.612	0.688	0.638	0.389	0.627	0.715	1.496
19.5	0.703	0.643	0.583	0.632	0.597	0.585	0.565	0.603	0.600	0.703	1.617
21.3	0.652	0.757	0.640	0.696	0.615	0.627	0.642	0.774	0.647	0.774	1.654
24.3	0.779	0.812	0.798	0.864	0.741	0.760	0.846	0.830	0.805	0.864	1.832

MATERIAL DECOMPOSITION RATE (MDR)
MILS / SECOND

STATION (IN)	MATERIAL DECOMPOSITION RATE (MDR) MILS / SECOND										DEGREE LOCATIONSEXPOSURE AVE. TIME
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	DEGREE LOCATIONS AVE.	TIME	
9.3	7.5	9.5	6.5	8.0	9.7	7.3	8.3	9.9	8.3	122.1	
10.7	9.2	8.1	7.8	9.2	9.4	7.7	9.4	10.1	8.9	119.9	
12.0	9.9	9.1	8.1	8.5	9.6	9.5	9.9	10.0	9.3	117.0	
13.1	9.8	9.1	7.3	8.6	9.3	9.1	9.7	9.4	9.0	114.2	
14.4	9.3	8.5	7.5	8.4	9.1	8.9	9.3	8.7	8.7	111.4	
16.0	9.0	8.5	7.6	8.4	8.5	8.2	8.5	8.3	8.4	108.4	
17.3	8.5	6.0	7.4	7.9	7.8	7.6	7.9	7.8	7.6	105.4	
18.5	6.9	5.6	6.0	6.6	5.9	6.7	6.2	3.8	5.9	103.2	
19.5	6.9	6.4	5.8	6.2	5.9	5.8	5.6	6.0	6.1	101.2	
21.3	6.7	7.7	6.5	7.1	6.3	6.4	6.6	7.9	6.9	97.8	
24.3	8.3	8.7	8.5	9.2	7.9	8.1	9.0	8.8	8.6	93.8	

MOTOR ACTION TIME = 122.9 SECONDS

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Table E-V. RSRM-29A Aft Dome Insulation Performance (Cont.)

STATION (IN)	COMPLIANCE SAFETY FACTOR (CSF)										REQUIRED S.F.
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	DEGREE LOCATIONS MIN.	PLANE	
9.3	5.32	4.25	6.13	4.99	4.15	5.47	4.82	4.06	4.06	316.8	1.5
10.7	4.25	4.85	5.03	4.26	4.17	5.06	4.18	3.87	3.87	316.8	1.5
12.0	3.90	4.23	4.76	4.50	4.03	4.06	3.87	3.84	3.84	316.8	1.5
13.1	3.84	4.12	5.13	4.40	4.06	4.12	3.90	4.03	3.84	0.0	1.5
14.4	3.94	4.34	4.88	4.39	4.04	4.14	3.98	4.25	3.94	0.0	1.5
16.0	3.87	4.10	4.59	4.16	4.09	4.23	4.10	4.21	3.87	0.0	1.5
17.3	3.98	5.59	4.58	4.26	4.32	4.44	4.29	4.31	3.98	0.0	1.5
18.5	4.70	5.85	5.46	4.96	5.49	4.88	5.27	8.64	4.70	0.0	1.5
19.5	4.48	4.90	5.40	4.98	5.28	5.38	5.58	5.22	4.48	0.0	1.5
21.3	4.51	3.88	4.59	4.22	4.78	4.69	4.58	3.80	3.80	316.8	1.5
24.3	3.77	3.62	3.68	3.40	3.97	3.87	3.48	3.54	3.40	136.8	1.5

SEGMENT MINIMUM = 3.40 AT THE 24.3 INCH STATION

STATION (IN)	ACTUAL SAFETY FACTOR (ASF)										REQUIRED S.F.
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	DEGREE LOCATIONS MIN.	PLANE	
9.3	5.74	4.55	6.54	5.29	4.48	5.82	5.25	4.38	4.38	316.8	1.5
10.7	4.64	5.24	5.42	4.60	4.50	5.44	4.48	4.14	4.14	316.8	1.5
12.0	4.28	4.59	5.15	4.88	4.38	4.40	4.18	4.14	4.14	316.8	1.5
13.1	4.19	4.44	5.52	4.78	4.41	4.46	4.19	4.31	4.19	0.0	1.5
14.4	4.16	4.58	5.17	4.64	4.31	4.40	4.21	4.46	4.16	0.0	1.5
16.0	4.18	4.40	4.95	4.48	4.42	4.53	4.44	4.53	4.18	0.0	1.5
17.3	4.45	6.24	5.08	4.70	4.80	4.92	4.80	4.80	4.45	0.0	1.5
18.5	5.32	6.63	6.09	5.55	6.21	5.47	5.98	9.67	5.32	0.0	1.5
19.5	5.15	5.69	6.19	5.71	6.11	6.14	6.48	6.01	5.15	0.0	1.5
21.3	5.22	4.51	5.28	4.87	5.50	5.33	5.32	4.37	4.37	316.8	1.5
24.3	4.39	4.20	4.17	3.89	4.52	4.42	4.02	4.05	3.89	136.8	1.5

SEGMENT MINIMUM = 3.89 AT THE 24.3 INCH STATION

Table E-VI. RSRM-29B Aft Dome Insulation Performance

PART NO. 1U76673-01 SERIAL NO. 0000057		PREFIRE MEASUREMENTS INCHES									
STATION (IN)		DEGREE LOCATIONS									
		0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	MIN.	MDT
9.3	5.135	5.197	5.189	5.297	5.343	5.167	5.214	5.124	5.124	5.193	4.900
10.7	5.025	5.017	4.989	5.069	5.126	5.086	5.004	4.988	4.988	5.021	4.700
12.0	4.895	4.854	4.875	4.874	4.991	4.911	4.832	4.841	4.832	4.875	4.500
13.1	4.721	4.654	4.672	4.689	4.769	4.727	4.606	4.627	4.606	4.681	4.300
14.4	4.387	4.339	4.360	4.393	4.425	4.400	4.298	4.354	4.298	4.374	4.100
16.0	4.110	4.081	4.101	4.140	4.159	4.156	4.001	4.098	4.001	4.106	3.780
17.3	4.019	3.974	3.946	3.996	4.051	4.003	3.923	3.964	3.923	3.985	3.560
18.5	3.805	3.763	3.772	3.806	3.781	3.808	3.713	3.751	3.713	3.776	3.360
19.5	3.607	3.612	3.614	3.620	3.644	3.617	3.531	3.604	3.531	3.613	3.150
21.3	3.423	3.403	3.453	3.406	3.455	3.371	3.340	3.378	3.340	3.405	2.940
24.3	3.465	3.424	3.402	3.415	3.455	3.424	3.361	3.407	3.361	3.420	2.940
33.0	3.590	3.544	3.593	3.519	3.655	3.664	3.519	3.526	3.519	3.567	3.200
45.0	2.927	2.915	2.935	3.013	2.898	2.886	2.905	2.921	2.886	2.918	2.600
53.0	3.757	3.813	3.800	3.737	3.931	3.755	3.788	3.808	3.737	3.794	3.380
56.0	3.483	3.514	3.522	3.442	3.506	3.322	3.420	3.445	3.322	3.464	2.790
72.0	2.097	2.070	2.077	2.074	2.122	2.078	2.094	2.098	2.070	2.086	2.000
75.0	1.887	1.666	1.898	1.886	1.925	1.890	1.917	1.894	1.666	1.892	1.800
78.0	1.729	1.693	1.722	1.692	1.706	1.720	1.707	1.687	1.687	1.707	1.600

PART NO. 1U76957-03 SERIAL NO. 0000014		POSTFIRE MEASUREMENTS INCHES									
STATION (IN)		DEGREE LOCATIONS									
		0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	MIN.	MEDIAN
9.3	3.741	3.867	4.130	3.827	4.031	4.040	4.313	4.252	3.741	4.036	
10.7	3.810	3.956	3.332	4.422	4.097	3.711	3.890	3.809	3.332	3.850	
12.0	3.706	3.808	3.700	3.942	3.927	3.562	3.697	3.680	3.562	3.703	
13.1	3.493	3.471	3.533	3.746	3.676	3.372	3.896	3.517	3.372	3.525	
14.4	3.326	2.702	2.916	2.644	2.657	3.170	3.329	3.294	2.644	3.043	
16.0	3.126	2.624	2.776	2.720	2.635	2.458	2.351	2.425	2.351	2.630	
17.3	2.356	2.605	2.721	2.790	2.621	2.534	2.446	2.456	2.356	2.569	
18.5	2.459	2.516	2.781	2.842	2.728	2.569	2.475	2.508	2.459	2.543	
19.5	2.511	2.509	2.882	2.883	2.835	2.646	2.560	2.574	2.509	2.610	
21.3	2.518	2.544	2.715	2.795	2.750	2.664	2.599	2.570	2.518	2.632	
24.3	2.621	2.452	2.491	2.612	2.361	2.304	2.285	2.327	2.257	2.315	
33.0	2.436	2.257	2.263	2.325	2.361	2.304	2.285	2.327	2.257	2.315	
45.0	2.136	1.888	1.982	1.875	1.892	1.895	1.950	1.980	1.875	1.923	
53.0	2.989	2.868	2.991	2.806	2.986	2.832	2.901	2.994	2.806	2.944	
56.0	2.849	2.661	2.778	2.771	2.649	2.705	2.542	2.780	2.542	2.738	
72.0	1.649	1.678	1.695	1.666	1.617	1.624	1.666	1.654	1.617	1.660	
75.0	1.528	1.557	1.557	1.545	1.454	1.518	1.484	1.486	1.454	1.523	
78.0	1.364	1.333	1.378	1.360	1.275	1.363	1.311	1.284	1.275	1.347	

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Table E-VI. RSRM-29B Aft Dome Insulation Performance (Cont.)

MATERIAL DECOMPOSITION DEPTH (MDD) INCHES												
STATION (IN)	DEGREE LOCATIONS											
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	MEDIAN	MAX.	DESIGN M+3S	
9.3	1.394	1.330	1.059	1.470	1.312	1.127	0.901	0.872	1.219	1.470	2.560	
10.7	1.215	1.061	1.657	0.647	1.029	1.375	1.114	1.179	1.146	1.657	2.261	
12.0	1.189	1.046	1.175	0.932	1.064	1.349	1.135	1.161	1.148	1.349	2.208	
13.1	1.228	1.183	1.139	0.943	1.093	1.355	0.710	1.110	1.124	1.355	2.218	
14.4	1.061	1.637	1.444	1.749	1.768	1.230	0.969	1.060	1.337	1.768	2.225	
16.0	0.984	1.457	1.325	1.420	1.524	1.698	1.650	1.673	1.490	1.698	1.980	
17.3	1.663	1.369	1.225	1.206	1.430	1.469	1.477	1.508	1.449	1.663	1.675	
18.5	1.346	1.247	0.991	0.964	1.053	1.239	1.238	1.243	1.239	1.346	1.496	
19.5	1.096	1.103	0.732	0.737	0.809	0.971	0.971	1.030	0.971	1.103	1.617	
21.3	0.905	0.859	0.738	0.611	0.705	0.707	0.741	0.808	0.740	0.905	1.654	
24.3	0.844	0.972	0.911	0.803	0.906	0.815	0.727	0.806	0.829	0.972	1.832	
33.0	1.154	1.287	1.330	1.194	1.294	1.360	1.234	1.199	1.260	1.360	1.399	
45.0	0.791	1.027	0.953	1.138	1.006	0.991	0.955	0.941	0.973	1.138	1.222	
53.0	0.768	0.945	0.809	0.931	0.945	0.923	0.887	0.814	0.905	0.945	1.305	
56.0	0.634	0.853	0.744	0.671	0.857	0.617	0.878	0.665	0.707	0.878	1.369	
72.0	0.448	0.392	0.382	0.408	0.505	0.454	0.428	0.444	0.436	0.505	0.817	
75.0	0.359	0.109	0.341	0.341	0.471	0.372	0.433	0.408	0.365	0.471	0.773	
78.0	0.365	0.360	0.344	0.332	0.431	0.357	0.396	0.403	0.363	0.431	0.718	

MATERIAL DECOMPOSITION RATE (MDR) MILS / SECOND												
STATION (IN)	DEGREE LOCATIONS EXPOSURE AVE. TIME											
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	AVE.	TIME		
9.3	11.4	10.9	8.7	12.0	10.7	9.2	7.4	7.1	9.7	122.1		
10.7	10.1	8.8	13.8	5.4	8.6	11.5	9.3	9.8	9.7	119.9		
12.0	10.2	8.9	10.1	8.0	9.1	11.5	9.7	9.9	9.7	116.9		
13.1	10.8	10.4	10.0	8.3	9.6	11.9	6.2	9.7	9.6	114.1		
14.4	9.5	14.7	13.0	15.7	15.9	11.1	8.7	9.5	12.3	111.3		
16.0	9.1	13.5	12.2	13.1	14.1	15.7	15.2	15.4	13.5	108.3		
17.3	15.8	13.0	11.6	11.5	13.6	14.0	14.0	14.3	13.5	105.3		
18.5	13.1	12.1	9.6	9.4	10.2	12.0	12.0	12.1	11.3	103.1		
19.5	10.8	10.9	7.2	7.3	8.0	9.6	10.2	10.2	9.2	101.1		
21.3	9.3	8.8	7.6	6.3	7.2	7.2	7.6	8.3	7.8	97.7		
24.3	9.0	10.4	9.7	8.6	9.7	8.7	7.8	8.6	9.1	93.7		
33.0	13.8	15.4	15.9	14.3	15.5	16.3	14.8	14.3	15.0	83.6		
45.0	10.5	13.7	12.7	15.2	13.4	13.2	12.7	12.5	13.0	75.0		
53.0	10.3	12.7	10.8	12.5	12.7	12.4	11.9	10.9	11.8	74.6		
56.0	8.5	11.5	10.0	9.0	11.5	8.3	11.8	8.9	9.9	74.4		
72.0	7.9	7.0	6.8	7.2	9.0	8.0	7.6	7.9	7.7	56.4		
75.0	7.1	2.1	6.7	6.7	9.3	7.3	8.5	8.0	7.0	50.7		
78.0	7.8	7.7	7.4	7.1	9.3	7.7	8.5	8.7	8.0	46.5		

MOTOR ACTION TIME = 122.9 SECONDS

Table E-VI. RSRM-29B Aft Dome Insulation Performance (Cont.)

STATION (IN)	COMPLIANCE SAFETY FACTOR (CSF)										REQUIRED S.F.
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	DEGREE LOCATIONS MIN.	PLANE	
9.3	3.52	3.68	4.63	3.33	3.73	4.35	5.44	5.62	3.33	136.8	1.5
10.7	3.87	4.43	2.84	7.26	4.57	3.42	4.22	3.99	2.84	90.0	1.5
12.0	3.78	4.30	3.83	4.83	4.23	3.34	3.96	3.88	3.34	226.8	1.5
13.1	3.50	3.63	3.78	4.56	3.93	3.17	6.06	3.87	3.17	226.8	1.5
14.4	3.86	2.50	2.84	2.34	2.32	3.33	4.23	3.87	2.32	180.0	1.5
16.0	3.84	2.59	2.85	2.66	2.48	2.23	2.29	2.26	2.23	226.8	1.5
17.3	2.14	2.60	2.91	2.95	2.49	2.42	2.41	2.36	2.14	0.0	1.5
18.5	2.50	2.69	3.39	3.49	3.19	2.71	2.71	2.70	2.50	0.0	1.5
19.5	2.87	2.86	4.30	4.27	3.89	3.24	3.24	3.06	2.86	46.8	1.5
21.3	3.25	3.42	3.98	4.81	4.17	4.16	3.97	3.64	3.25	0.0	1.5
24.3	3.48	3.02	3.23	3.66	3.25	3.61	4.04	3.65	3.02	46.8	1.5
33.0	2.77	2.49	2.41	2.68	2.47	2.35	2.59	2.67	2.35	226.8	1.5
45.0	3.29	2.53	2.73	2.28	2.58	2.62	2.72	2.76	2.28	136.8	1.5
53.0	4.40	3.58	4.18	3.63	3.58	3.66	3.81	4.15	3.58	46.8	1.5
56.0	4.40	3.27	3.75	4.16	3.26	4.52	3.18	4.20	3.18	270.0	2.0
72.0	4.46	5.10	5.24	4.90	3.96	4.41	4.67	4.50	3.96	180.0	1.5
75.0	5.01	16.51	5.28	5.28	3.82	4.84	4.16	4.41	3.82	180.0	1.5
78.0	4.38	4.44	4.65	4.82	3.71	4.48	4.04	3.97	3.71	180.0	1.5

SEGMENT MINIMUM = 2.14 AT THE 17.3 INCH STATION

STATION (IN)	ACTUAL SAFETY FACTOR (ASF)										REQUIRED S.F.
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	DEGREE LOCATIONS MIN.	PLANE	
9.3	3.68	3.91	4.90	3.60	4.07	4.58	5.79	5.88	3.60	136.8	1.5
10.7	4.14	4.73	3.01	7.83	4.98	3.70	4.49	4.23	3.01	90.0	1.5
12.0	4.12	4.64	4.15	5.23	4.69	3.64	4.26	4.17	3.64	226.8	1.5
13.1	3.84	3.93	4.10	4.97	4.36	3.49	6.49	4.17	3.49	226.8	1.5
14.4	4.13	2.65	3.02	2.51	2.50	3.58	4.44	4.11	2.50	180.0	1.5
16.0	4.18	2.80	3.10	2.92	2.73	2.45	2.42	2.45	2.42	270.0	1.5
17.3	2.42	2.90	3.22	3.31	2.83	2.72	2.66	2.63	2.42	0.0	1.5
18.5	2.83	3.02	3.81	3.95	3.59	3.07	3.00	3.02	2.83	0.0	1.5
19.5	3.29	3.27	4.94	4.91	4.50	3.73	3.64	3.50	3.27	46.8	1.5
21.3	3.78	3.96	4.68	5.57	4.90	4.77	4.51	4.18	3.78	0.0	1.5
24.3	4.11	3.52	3.73	4.25	3.81	4.20	4.62	4.23	3.52	46.8	1.5
33.0	3.11	2.75	2.70	2.95	2.82	2.69	2.85	2.94	2.69	226.8	1.5
45.0	3.70	2.84	3.08	2.65	2.88	2.91	3.04	3.10	2.65	136.8	1.5
53.0	4.89	4.03	4.70	4.01	4.16	4.07	4.27	4.68	4.01	136.8	1.5
56.0	5.49	4.12	4.73	5.13	4.09	5.38	3.90	5.18	3.90	270.0	2.0
72.0	4.68	5.28	5.44	5.08	4.20	4.58	4.89	4.73	4.20	180.0	1.5
75.0	5.26	15.28	5.57	5.53	4.09	5.08	4.43	4.64	4.09	180.0	1.5
78.0	4.74	4.70	5.01	5.10	3.96	4.82	4.31	4.19	3.96	180.0	1.5

SEGMENT MINIMUM = 2.42 AT THE 17.3 INCH STATION

Table E-VII. RSRM-29B Aft Cylinder Insulation Performance

STATION (IN)	PREFIRE MEASUREMENTS INCHES														DEGREE LOCATIONS			MDT	
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	MIN.			MEDIAN			MDT				
85.0	1.519	1.542	1.577	1.536	1.534	1.612	1.536	1.652	1.519			1.539			1.300			1.300	
90.0	1.432	1.414	1.425	1.412	1.477	1.422	1.428	1.406	1.406			1.424			1.265			1.265	
98.0	1.407	1.589	1.352	1.354	1.389	1.377	1.429	1.488	1.352			1.398			1.135			1.135	
105.8	1.160	1.116	1.113	1.111	1.156	1.103	1.103	1.102	1.102			1.112			1.080			1.080	
116.0	1.074	1.073	1.063	1.084	1.082	1.062	1.112	1.089	1.062			1.078			1.050			1.050	
124.5	1.070	1.059	1.094	1.072	1.074	1.057	1.110	1.048	1.048			1.071			1.030			1.030	
133.0	1.188	1.136	1.138	1.184	1.214	1.191	1.167	1.127	1.127			1.176			0.980			0.980	
145.5	0.951	0.950	0.952	0.950	0.947	0.942	0.946	0.960	0.942			0.950			0.930			0.930	
158.5	0.914	0.922	0.916	0.921	0.916	0.902	0.916	0.912	0.902			0.916			0.880			0.880	
166.0	1.017	1.006	1.010	0.989	1.049	1.107	1.022	0.990	0.989			1.013			0.850			0.850	
177.7	1.550	1.548	1.515	1.521	1.492	1.509	1.469	1.494	1.469			1.512			1.000			1.000	
192.5	0.928	0.937	0.942	0.927	0.922	0.876	0.895	0.960	0.876			0.928			0.780			0.780	
202.5	0.738	0.742	0.739	0.751	0.737	0.769	0.752	0.757	0.737			0.747			0.730			0.730	
214.0	0.721	0.722	0.721	0.722	0.717	0.734	0.741	0.730	0.717			0.722			0.700			0.700	
227.3	0.783	0.761	0.765	0.748	0.786	0.797	0.771	0.766	0.748			0.769			0.650			0.650	
238.3	0.654	0.660	0.649	0.649	0.659	0.643	0.662	0.654	0.643			0.654			0.630			0.630	
250.0	0.565	0.576	0.564	0.575	0.571	0.566	0.562	0.568	0.562			0.567			0.550			0.550	
269.0	0.584	0.581	0.605	0.605	0.617	0.590	0.584	0.578	0.578			0.587			0.500			0.500	
283.9	0.497	0.482	0.482	0.480	0.492	0.482	0.475	0.476	0.475			0.482			0.450			0.450	
299.1	1.083	1.082	1.062	1.091	1.101	1.108	1.073	1.093	1.062			1.087			0.676			0.676	
322.0	0.414	0.414	0.406	0.424	0.409	0.419	0.414	0.416	0.406			0.414			0.380			0.380	
339.0	0.409	0.399	0.411	0.405	0.405	0.407	0.400	0.419	0.399			0.406			0.380			0.380	
358.0	0.422	0.405	0.413	0.414	0.408	0.422	0.411	0.419	0.405			0.414			0.380			0.380	
367.0	0.501	0.425	0.473	0.449	0.449	0.448	0.439	0.454	0.425			0.449			0.530			0.530	
377.5	0.741	0.677	0.659	0.678	0.707	0.725	0.678	0.689	0.659			0.683							

Table E-VII. RSRM-29B Aft Cylinder Insulation Performance (Cont.)

PART NO. 1U76957-03 SERIAL NO. 0000014	POSTFIRE MEASUREMENTS INCHES									
	DEGREE LOCATIONS									
	MIN.	270.0	316.8	MIN.	270.0	316.8	MIN.	270.0	316.8	MEDIAN
STATION (IN)	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	MIN.	MEDIAN
85.0	1.179	1.191	1.222	1.170	1.158	1.178	1.177	1.200	1.158	1.179
90.0	1.088	1.065	1.105	1.069	1.057	1.076	1.032	1.042	1.032	1.067
98.0	1.048	0.988	1.058	0.966	1.095	0.982	1.060	0.971	0.966	1.018
105.8	0.737	0.720	0.762	0.750	0.776	0.669	0.850	0.702	0.669	0.743
116.0	0.759	0.731	0.669	0.682	0.654	0.670	0.853	0.698	0.654	0.690
124.5	0.716	0.666	0.711	0.669	0.659	0.653	0.757	0.681	0.653	0.675
133.0	0.755	0.737	0.773	0.825	0.785	0.815	0.826	0.809	0.737	0.797
145.5	0.622	0.584	0.590	0.567	0.531	0.554	0.566	0.562	0.531	0.567
158.5	0.637	0.562	0.569	0.554	0.529	0.540	0.566	0.570	0.529	0.564
166.0	0.720	0.659	0.712	0.725	0.667	0.751	0.712	0.693	0.659	0.712
177.7	1.151	1.175	1.161	1.149	1.098	1.069	1.116	1.183	1.069	1.150
192.5	0.632	0.649	0.656	0.613	0.595	0.578	0.609	0.671	0.578	0.623
202.5	0.455	0.470	0.485	0.460	0.465	0.462	0.482	0.483	0.455	0.468
214.0	0.429	0.460	0.462	0.380	0.426	0.408	0.466	0.442	0.380	0.435
227.3	0.488	0.525	0.511	0.465	0.538	0.496	0.535	0.533	0.465	0.518
238.3	0.429	0.431	0.438	0.417	0.422	0.410	0.444	0.444	0.410	0.430
250.0	0.319	0.359	0.358	0.330	0.331	0.325	0.327	0.367	0.319	0.331
269.0	0.428	0.508	0.464	0.448	0.399	0.356	0.389	0.401	0.356	0.414
283.9	0.329	0.362	0.342	0.296	0.313	0.311	0.316	0.305	0.296	0.315
299.1	0.889	0.954	0.934	0.956	0.880	0.893	0.874	0.923	0.874	0.908
322.0	0.340	0.345	0.350	0.311	0.298	0.295	0.369	0.334	0.295	0.337
339.0	0.322	0.337	0.349	0.293	0.312	0.313	0.293	0.341	0.293	0.317
358.0	0.460	0.425	0.451	0.436	0.389	0.485	0.346	0.395	0.346	0.431
367.0	0.377	0.340	0.379	0.356	0.379	0.374	0.374	0.366	0.340	0.374
377.5	0.561	0.530	0.477	0.511	0.564	0.562	0.594	0.583	0.477	0.562

Table E-VII. RSRM-29B Aft Cylinder Insulation Performance (Cont.)

STATION (IN)	MATERIAL DECOMPOSITION DEPTH (MDD) INCHES										DESIGN M+3S
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	DEGREE LOCATIONS MEDIAN	MAX.	
85.0	0.340	0.351	0.355	0.366	0.376	0.434	0.359	0.452	0.363	0.452	0.618
90.0	0.344	0.349	0.320	0.343	0.420	0.346	0.396	0.364	0.348	0.420	0.576
98.0	0.359	0.601	0.294	0.388	0.294	0.395	0.369	0.517	0.379	0.601	0.582
105.8	0.423	0.396	0.351	0.361	0.380	0.434	0.253	0.400	0.388	0.434	0.559
116.0	0.315	0.342	0.394	0.402	0.428	0.392	0.259	0.391	0.391	0.428	0.527
124.5	0.354	0.393	0.383	0.403	0.415	0.404	0.353	0.367	0.388	0.415	0.522
133.0	0.433	0.399	0.365	0.359	0.429	0.376	0.341	0.318	0.370	0.433	0.516
145.5	0.329	0.366	0.362	0.383	0.416	0.388	0.380	0.398	0.382	0.416	0.493
158.5	0.277	0.360	0.347	0.367	0.387	0.362	0.350	0.342	0.355	0.387	0.491
166.0	0.297	0.347	0.298	0.264	0.382	0.356	0.310	0.297	0.304	0.382	0.466
177.7	0.399	0.373	0.354	0.372	0.394	0.440	0.353	0.311	0.373	0.440	0.452
192.5	0.296	0.288	0.286	0.314	0.327	0.298	0.286	0.289	0.292	0.327	0.400
202.5	0.283	0.272	0.254	0.291	0.272	0.307	0.270	0.274	0.273	0.307	0.376
214.0	0.292	0.262	0.259	0.342	0.291	0.326	0.275	0.288	0.290	0.342	0.351
227.3	0.295	0.236	0.254	0.283	0.248	0.301	0.236	0.233	0.251	0.301	0.317
238.3	0.225	0.229	0.211	0.232	0.237	0.233	0.218	0.210	0.227	0.237	0.331
250.0	0.246	0.217	0.206	0.245	0.240	0.241	0.235	0.201	0.237	0.246	0.285
269.0	0.156	0.073	0.141	0.157	0.218	0.234	0.195	0.177	0.167	0.234	0.297
283.9	0.168	0.120	0.140	0.184	0.179	0.171	0.159	0.171	0.170	0.184	0.251
299.1	0.194	0.128	0.128	0.135	0.221	0.215	0.199	0.170	0.182	0.221	0.253
322.0	0.074	0.069	0.056	0.113	0.111	0.124	0.045	0.082	0.078	0.124	0.197
339.0	0.087	0.062	0.062	0.112	0.093	0.094	0.107	0.078	0.090	0.112	0.190
358.0	0	0	0	0	0.019	0	0.065	0.024	0	0.065	0.181
367.0	0.124	0.085	0.094	0.093	0.070	0.074	0.065	0.088	0.087	0.124	0.175
377.5	0.180	0.147	0.182	0.167	0.143	0.163	0.084	0.106	0.155	0.182	0.237

A " < " INDICATES THE PRECEDING MDD HAS EXCEEDED THE M + 3 SIGMA DESIGN CRITERIA

Table E-VII. RSRM-29B Aft Cylinder Insulation Performance (Cont.)

REVISION _____

MATERIAL DECOMPOSITION RATE (MDR)
MILS / SECOND

STATION (IN)	DEGREE LOCATION										EXPOSURE TIME	
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	AVE.			
85.0	7.5	7.8	7.9	8.1	8.3	9.6	8.0	10.0	8.4	8.4	45.1	
90.0	7.7	7.8	7.7	7.7	9.4	7.8	8.9	8.2	8.1	8.1	44.5	
98.0	8.3	13.8	6.8	8.9	6.8	9.1	8.5	11.9	9.2	9.2	43.5	
105.8	9.9	9.3	8.2	8.5	8.9	10.2	5.9	9.4	8.8	8.8	42.7	
116.0	7.5	8.2	9.4	9.6	10.2	9.4	6.2	9.3	8.7	8.7	41.9	
124.5	8.7	9.6	9.4	9.9	10.1	9.9	8.6	9.0	9.4	9.4	40.9	
133.0	10.9	10.1	9.2	9.0	10.8	9.5	8.6	8.0	9.5	9.5	39.7	
145.5	8.7	9.7	9.6	10.2	11.0	10.3	10.1	10.6	10.0	10.0	37.7	
158.5	7.7	10.0	9.6	10.2	10.7	10.0	9.7	9.5	9.7	9.7	36.1	
166.0	8.3	9.7	8.3	7.4	10.7	10.0	8.7	8.3	8.9	8.9	35.7	
177.7	11.6	10.9	10.3	10.8	11.5	12.8	10.3	9.1	10.9	10.9	34.3	
192.5	9.5	9.3	9.2	10.1	10.5	9.6	9.2	9.3	9.6	9.6	31.1	
202.5	9.5	9.2	8.6	9.8	9.2	10.3	9.1	9.2	9.4	9.4	29.7	
214.0	10.5	9.4	9.3	12.3	10.4	11.7	9.9	10.3	10.5	10.5	27.9	
227.3	11.4	9.1	9.8	10.9	9.6	11.6	9.1	9.0	10.1	10.1	25.9	
238.3	9.3	9.4	8.7	9.5	9.8	9.6	9.0	8.6	9.2	9.2	24.3	
250.0	11.2	9.9	9.4	11.1	10.9	11.0	10.7	9.1	10.4	10.4	22.0	
269.0	7.9	3.7	7.2	8.0	11.1	11.9	9.9	9.0	8.6	8.6	19.7	
283.9	9.9	7.1	8.2	10.8	10.5	10.1	9.4	10.1	9.5	9.5	17.0	
299.1	11.0	7.3	7.3	7.7	12.6	12.2	11.3	9.7	9.9	9.9	17.6	
322.0	5.8	5.4	4.4	8.8	8.7	9.7	3.5	6.4	6.6	6.6	12.8	
339.0	7.1	5.1	5.1	9.2	7.6	7.7	8.8	6.4	7.1	7.1	12.2	
358.0	0	0	0	0	1.7	0	5.7	2.1	1.2	1.2	11.4	
367.0	11.3	7.7	8.5	8.5	6.4	6.7	5.9	8.0	7.9	7.9	11.0	
377.5	8.9	7.2	9.0	8.2	7.0	8.0	4.1	5.2	7.2	7.2	20.3	

MOTOR ACTION TIME = 122.9 SECONDS

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Table E-VII. RSRM-29B Aft Cylinder Insulation Performance (Cont.)

STATION (IN)	COMPLIANCE SAFETY FACTOR (CSF)										REQUIRED S.F.
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	DEGREE LOCATIONS MIN.	PLANE	
85.0	3.82	3.70	3.66	3.55	3.46	3.00	3.62	2.88	2.88	316.8	1.5
90.0	3.68	3.62	3.95	3.69	3.01	3.66	3.19	3.48	3.01	180.0	1.5
98.0	3.16	1.89	3.86	2.93	3.86	2.87	3.08	2.20	1.89	46.8	1.5
105.8	2.55	2.73	3.08	2.99	2.84	2.49	4.27	2.70	2.49	226.8	1.5
116.0	3.33	3.07	2.66	2.61	2.45	2.68	4.05	2.69	2.45	180.0	1.5
124.5	2.91	2.62	2.69	2.56	2.48	2.55	2.92	2.81	2.48	180.0	1.5
133.0	2.26	2.46	2.68	2.73	2.28	2.61	2.87	3.08	2.26	0.0	1.5
145.5	2.83	2.54	2.57	2.43	2.24	2.40	2.45	2.34	2.24	180.0	1.5
158.5	3.18	2.44	2.54	2.40	2.27	2.43	2.51	2.57	2.27	180.0	1.5
166.0	2.86	2.45	2.85	3.22	2.23	2.39	2.74	2.86	2.23	180.0	1.5
177.7	2.51	2.68	2.82	2.69	2.54	2.27	2.83	3.22	2.27	226.8	2.0
192.5	2.64	2.71	2.73	2.48	2.39	2.62	2.73	2.70	2.39	180.0	1.5
202.5	2.58	2.68	2.87	2.51	2.68	2.38	2.70	2.66	2.38	226.8	1.5
214.0	2.40	2.67	2.70	2.05	2.41	2.15	2.55	2.43	2.05	136.8	1.5
227.3	2.20	2.75	2.56	2.30	2.62	2.16	2.75	2.79	2.16	226.8	1.5
238.3	2.80	2.75	2.99	2.72	2.66	2.70	2.89	3.00	2.66	180.0	1.5
250.0	2.24	2.53	2.67	2.24	2.29	2.28	2.34	2.74	2.24	0.0	1.5
269.0	3.21	6.85	3.55	3.18	2.29	2.14	2.56	2.82	2.14	226.8	1.5
283.9	2.68	3.75	3.21	2.45	2.51	2.63	2.83	2.63	2.45	136.8	1.5
299.1	3.48	5.28	5.28	5.01	3.06	3.14	3.40	3.98	3.06	180.0	2.0
322.0	5.14	5.51	6.79	3.36	3.42	3.06	8.44	4.63	3.06	226.8	1.5
339.0	4.37	6.13	6.13	3.39	4.09	4.04	3.55	4.87	3.39	136.8	1.5
358.0	+	+	+	+	20.00	+	5.85	15.83	5.85	270.0	1.5
367.0	3.06	4.47	4.04	4.09	5.43	5.14	5.85	4.32	3.06	0.0	1.5
377.5	2.94	3.61	2.91	3.17	3.71	3.25	6.31	5.00	2.91	90.0	1.5

SEGMENT MINIMUM = 1.89 AT THE 98.0 INCH STATION

A " + " MEANS NEGLIGIBLE MDD HAS OCCURRED

Table E-VII. RSRM-29B Aft Cylinder Insulation Performance (Cont.)

STATION (IN)	ACTUAL SAFETY FACTOR (ASF)										REQUIRED S.F.
	0.0	46.8	90.0	136.8	180.0	226.8	270.0	316.8	DEGREE LOCATIONS MIN.	PLANE	
85.0	4.47	4.39	4.44	4.20	4.08	3.71	4.28	3.65	3.65	316.8	1.5
90.0	4.16	4.05	4.45	4.12	3.52	4.11	3.61	3.86	3.52	180.0	1.5
98.0	3.92	2.64	4.60	3.49	4.72	3.49	3.87	2.88	2.64	46.8	1.5
105.8	2.74	2.82	3.17	3.08	3.04	2.54	4.36	2.76	2.54	226.8	1.5
116.0	3.41	3.14	2.70	2.70	2.53	2.71	4.29	2.79	2.53	180.0	1.5
124.5	3.02	2.69	2.86	2.66	2.59	2.62	3.14	2.86	2.59	180.0	1.5
133.0	2.74	2.85	3.12	3.30	2.83	3.17	3.42	3.54	2.74	0.0	1.5
145.5	2.89	2.60	2.63	2.48	2.28	2.43	2.49	2.41	2.28	180.0	1.5
158.5	3.30	2.56	2.64	2.51	2.37	2.49	2.62	2.67	2.37	180.0	1.5
166.0	3.42	2.90	3.39	3.75	2.75	3.11	3.30	3.33	2.75	180.0	1.5
177.7	3.88	4.15	4.28	4.09	3.79	3.43	4.16	4.80	3.43	226.8	2.0
192.5	3.14	3.25	3.29	2.95	2.82	2.94	3.13	3.32	2.82	180.0	1.5
202.5	2.61	2.73	2.91	2.58	2.71	2.50	2.79	2.76	2.50	226.8	1.5
214.0	2.47	2.76	2.78	2.11	2.46	2.25	2.69	2.53	2.11	136.8	1.5
227.3	2.65	3.22	3.01	2.64	3.17	2.65	3.27	3.29	2.64	136.8	1.5
238.3	2.91	2.88	3.08	2.80	2.78	2.76	3.04	3.11	2.76	226.8	1.5
250.0	2.30	2.65	2.74	2.35	2.38	2.35	2.39	2.83	2.30	0.0	1.5
269.0	3.74	7.96	4.29	3.85	2.83	2.52	2.99	3.27	2.52	226.8	1.5
283.9	2.96	4.02	3.44	2.61	2.75	2.82	2.99	2.78	2.61	136.8	1.5
299.1	5.58	8.45	8.30	8.08	4.98	5.15	5.39	6.43	4.98	180.0	2.0
322.0	5.59	6.00	7.25	3.75	3.68	3.38	9.20	5.07	3.38	226.8	1.5
339.0	4.70	6.44	6.63	3.62	4.35	4.33	3.74	5.37	3.62	136.8	1.5
358.0	+	+	+	+	21.47	+	6.32	17.46	6.32	270.0	1.5
367.0	4.04	5.00	5.03	4.83	6.41	6.05	6.75	5.16	4.04	0.0	1.5
377.5	4.12	4.61	3.62	4.06	4.94	4.45	8.07	6.50	3.62	90.0	1.5

SEGMENT MINIMUM = 2.11 AT THE 214.0 INCH STATION
A " + " MEANS NEGLIGIBLE MDD HAS OCCURRED

Table E-VIII. RSRM-29B Aft Center Segment Insulation Performance

PART NO. 1U76667-02		PREFIRE MEASUREMENTS									
SERIAL NO. 0000065		INCHES									
STATION (IN)		DEGREE LOCATIONS									
		0.0	46.0	90.0	136.0	180.0	226.0	270.0	316.0	MIN.	MDT
3.5	2.536	2.481	2.383	2.561	2.542	2.613	2.481	2.532	2.383	2.534	2.120
11.0	2.364	2.388	2.372	2.454	2.337	2.419	2.343	2.326	2.326	2.368	1.900
30.7	0.831	0.819	0.405	0.848	0.851	0.821	0.434	0.832	0.405	0.826	0.400
36.2	0.806	0.785	0.800	0.799	0.796	0.792	0.795	0.789	0.785	0.796	0.600
44.6	0.375	0.370	0.374	0.370	0.375	0.370	0.375	0.369	0.369	0.372	0.360
71.5	0.194	0.194	0.195	0.197	0.197	0.195	0.196	0.197	0.194	0.196	0.170
126.0	0.158	0.158	0.161	0.159	0.159	0.161	0.159	0.165	0.158	0.159	0.150
145.0	0.157	0.164	0.157	0.161	0.159	0.160	0.159	0.160	0.157	0.160	0.150
161.4	0.541	0.545	0.531	0.549	0.536	0.574	0.535	0.550	0.531	0.543	0.236
163.0	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.236
178.0	0.194	0.198	0.192	0.194	0.197	0.197	0.198	0.195	0.192	0.196	0.130
214.1	0.136	0.141	0.137	0.141	0.138	0.145	0.143	0.145	0.136	0.141	0.130
280.0	0.107	0.111	0.113	0.107	0.109	0.113	0.108	0.112	0.107	0.110	0.090
298.0	0.108	0.111	0.111	0.107	0.107	0.115	0.112	0.110	0.107	0.111	0.090
311.8	0.106	0.106	0.108	0.107	0.111	0.111	0.111	0.107	0.106	0.108	0.090

PART NO. 1U76791-01		POSTFIRE MEASUREMENTS									
SERIAL NO. 0000028		INCHES									
STATION (IN)		DEGREE LOCATIONS									
		0.0	46.0	90.0	136.0	180.0	226.0	270.0	316.0	MIN.	MEDIAN
3.5	2.020	2.026	2.122	2.172	2.087	2.092	2.148	2.160	2.020	2.107	
11.0	1.768	1.956	1.995	1.945	1.937	1.863	1.850	1.850	1.768	1.900	
30.7	0.605	0.567	0.620	0.615	0.627	0.567	0.603	0.568	0.567	0.604	
36.2	0.679	0.619	0.665	0.647	0.633	0.610	0.635	0.612	0.610	0.634	
44.6	0.335	0.333	0.315	0.335	0.329	0.345	0.313	0.345	0.313	0.334	
71.5	0.148	0.138	0.144	0.137	0.159	0.136	0.129	0.132	0.129	0.138	
126.0	0.134	0.126	0.135	0.118	0.112	0.120	0.119	0.119	0.112	0.120	
145.0	0.125	0.128	0.136	0.144	0.135	0.133	0.123	0.129	0.123	0.131	
161.4	0.479	0.479	0.486	0.497	0.482	0.507	0.476	0.518	0.476	0.484	
163.0	0.451	0.458	0.458	0.458	0.462	0.483	0.449	0.464	0.449	0.458	
178.0	0.164	0.174	0.167	L	0.182	L	0.168	0.174	0.164	0.174	
214.1	0.117	0.128	L	L	0.134	L	L	L	0.117	0.139	
280.0	L	L	L	L	L	L	L	L	L	0.110	
298.0	L	L	L	L	L	L	L	L	L	0.111	
311.8	L	L	L	L	L	L	L	L	L	0.108	

AN " L " INDICATES THAT LINER MATERIAL WAS REMAINING AT THAT LOCATION.
THE MEDIAN AND MINIMUM VALUES WERE CALCULATED USING THE PREFIRE THICKNESSES
AT THE LOCATIONS WHERE LINER MATERIAL WAS REMAINING

Table E-VIII. RSRM-29B Aft Center Segment Insulation Performance (Cont.)

STATION (IN)	COMPLIANCE SAFETY FACTOR (CSF)										REQUIRED S.F.
	0.0	46.0	90.0	136.0	180.0	226.0	270.0	316.0	MIN.	PLANE	
3.5	4.11	4.66	8.12	5.45	4.66	4.07	6.37	5.70	4.07	226.0	2.0
11.0	3.19	4.40	5.04	3.73	4.75	3.42	3.85	3.99	3.19	0.0	1.5
30.7	1.77	1.59	+	1.72	1.79	1.57	+	1.52	1.52	316.0	1.5
36.2	4.72	3.61	4.44	3.95	3.68	3.30	3.75	3.39	3.30	226.0	1.5
44.6	9.00	9.73	6.10	10.29	7.83	14.40	5.81	15.00	5.81	270.0	1.5
71.5	3.70	3.04	3.33	2.83	4.47	2.88	2.54	2.62	2.54	270.0	1.5
126.0	6.25	4.69	5.77	3.66	3.19	3.66	3.75	3.26	3.19	180.0	1.5
145.0	4.69	4.17	7.14	8.82	6.25	5.56	4.17	4.84	4.17	46.0	1.5
161.4	3.81	3.58	5.24	4.54	4.37	3.52	4.00	7.37	3.52	226.0	2.0
163.0	2.38	2.57	2.57	2.57	2.68	3.52	2.34	2.74	2.34	270.0	2.0
178.0	4.33	5.42	5.20	+	8.67	+	4.33	6.19	4.33	0.0	1.5
214.1	6.84	10.00	+	+	32.50	+	+	+	6.84	0.0	1.5
280.0	+	+	+	+	+	+	+	+	+	0.0	1.5
298.0	+	+	+	+	+	+	+	+	+	0.0	1.5
311.8	+	+	+	+	+	+	+	+	+	0.0	1.5

SEGMENT MINIMUM = 1.52 AT THE 30.7 INCH STATION
A " + " MEANS NEGLIGIBLE MDD HAS OCCURRED

STATION (IN)	ACTUAL SAFETY FACTOR (ASF)										REQUIRED S.F.
	0.0	46.0	90.0	136.0	180.0	226.0	270.0	316.0	MIN.	PLANE	
3.5	4.91	5.45	9.13	6.58	5.59	5.02	7.45	6.81	4.91	0.0	2.0
11.0	3.97	5.53	6.29	4.82	5.84	4.35	4.75	4.89	3.97	0.0	1.5
30.7	3.68	3.25	+	3.64	3.80	3.23	+	3.15	3.15	316.0	1.5
36.2	6.35	4.73	5.93	5.26	4.88	4.35	4.97	4.46	4.35	226.0	1.5
44.6	9.38	10.00	6.34	10.57	8.15	14.80	6.05	15.38	6.05	270.0	1.5
71.5	4.22	3.46	3.82	3.28	5.18	3.31	2.93	3.03	2.93	270.0	1.5
126.0	6.58	4.94	6.19	3.88	3.38	3.93	3.98	3.59	3.38	180.0	1.5
145.0	4.91	4.56	7.48	9.47	6.63	5.93	4.42	5.16	4.42	270.0	1.5
161.4	8.73	8.26	11.80	10.56	9.93	8.57	9.07	17.19	8.26	46.0	2.0
163.0	5.56	5.98	5.98	5.98	6.25	8.21	5.45	6.40	5.45	270.0	2.0
178.0	6.47	8.25	7.68	+	13.13	+	6.60	9.29	6.47	0.0	1.5
214.1	7.16	10.85	+	+	34.50	+	+	+	7.16	0.0	1.5
280.0	+	+	+	+	+	+	+	+	+	0.0	1.5
298.0	+	+	+	+	+	+	+	+	+	0.0	1.5
311.8	+	+	+	+	+	+	+	+	+	0.0	1.5

SEGMENT MINIMUM = 2.93 AT THE 71.5 INCH STATION
A " + " MEANS NEGLIGIBLE MDD HAS OCCURRED

Table E-IX. RSRM-29B Forward Center Segment Insulation Performance

PART NO. 1U76667-02		PREFIRE MEASUREMENTS									
SERIAL NO. 0000066		INCHES									
STATION (IN)	0.0	46.0	90.0	136.0	180.0	226.0	270.0	316.0	MIN.	MEDIAN	MDT
DEGREE LOCATIONS											
3.5	2.716	2.808	2.722	2.773	2.726	2.674	2.745	2.754	2.674	2.736	2.120
11.0	2.385	2.386	2.372	2.421	2.402	2.422	2.489	2.425	2.372	2.411	1.900
30.7	0.832	0.836	0.849	0.832	0.833	0.829	0.844	0.840	0.829	0.835	0.774
36.2	0.781	0.792	0.796	0.797	0.791	0.784	0.791	0.790	0.781	0.791	0.600
44.6	0.372	0.366	0.366	0.365	0.370	0.371	0.367	0.366	0.365	0.367	0.360
71.5	0.194	0.204	0.205	0.206	0.205	0.200	0.209	0.198	0.194	0.205	0.170
126.0	0.165	0.169	0.173	0.171	0.162	0.170	0.170	0.176	0.162	0.170	0.150
145.0	0.166	0.175	0.174	0.174	0.171	0.170	0.171	0.179	0.166	0.172	0.150
161.4	0.543	0.551	0.528	0.556	0.522	0.539	0.544	0.564	0.522	0.544	0.236
163.0	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.550	0.236
178.0	0.199	0.201	0.203	0.209	0.201	0.202	0.200	0.207	0.199	0.202	0.130
214.1	0.141	0.147	0.150	0.150	0.149	0.145	0.149	0.153	0.141	0.149	0.130
280.0	0.102	0.102	0.102	0.101	0.101	0.101	0.126	0.101	0.101	0.102	0.090
298.0	0.097	0.104	0.102	0.102	0.102	0.107	0.100	0.099	0.097	0.102	0.090
311.8	0.098	0.101	0.101	0.107	0.122	0.108	0.099	0.110	0.098	0.104	0.090

PART NO. 1U76791-01		POSTFIRE MEASUREMENTS									
SERIAL NO. 0000029		INCHES									
STATION (IN)	0.0	46.0	90.0	136.0	180.0	226.0	270.0	316.0	MIN.	MEDIAN	
DEGREE LOCATIONS											
3.5	2.509	2.617	2.562	2.523	2.603	2.510	2.585	2.545	2.509	2.554	
11.0	2.213	2.267	2.310	2.319	2.277	2.221	2.239	2.283	2.213	2.272	
30.7	0.717	0.740	0.772	0.748	0.706	0.717	0.753	0.731	0.706	0.736	
36.2	0.698	0.722	0.775	0.740	0.740	0.743	0.749	0.726	0.698	0.740	
44.6	L	L	0.376	L	L	0.367	0.359	0.349	0.349	0.367	
71.5	L	L	0.178	L	L	L	0.208	L	0.178	0.202	
126.0	L	L	L	0.148	L	L	0.152	L	0.148	0.167	
145.0	L	L	L	0.140	L	L	L	L	0.140	0.171	
161.4	0.518	0.535	0.508	0.518	0.510	L	0.536	0.527	0.508	0.523	
163.0	0.496	0.520	0.494	0.515	0.485	L	0.505	0.499	0.485	0.502	
178.0	L	L	L	L	0.183	L	L	L	0.183	0.202	
214.1	L	L	L	L	L	L	L	L	L	0.149	
280.0	L	L	L	L	L	L	L	L	L	0.102	
298.0	L	L	L	L	L	L	L	L	L	0.102	
311.8	L	L	L	L	L	L	L	L	L	0.104	

AN "L" INDICATES THAT LINER MATERIAL WAS REMAINING AT THAT LOCATION. THE MEDIAN AND MINIMUM VALUES WERE CALCULATED USING THE PREFIRE THICKNESSES AT THE LOCATIONS WHERE LINER MATERIAL WAS REMAINING

Table E-IX. RSRM-29B Forward Center Segment Insulation Performance (Cont.)

STATION (IN)	MATERIAL DECOMPOSITION DEPTH (MDD) INCHES										DESIGN M+35
	0.0	46.0	90.0	136.0	180.0	226.0	270.0	316.0	MEDIAN	MAX.	
3.5	0.207	0.191	0.160	0.250	0.123	0.164	0.160	0.209	0.178	0.250	1.067
11.0	0.172	0.119	0.062	0.102	0.125	0.201	0.250	0.142	0.133	0.250	0.829
30.7	0.115	0.096	0.077	0.084	0.127	0.112	0.091	0.109	0.102	0.127	0.484
36.2	0.083	0.070	0.021	0.057	0.051	0.041	0.042	0.064	0.054	0.083	0.318
44.6	0	0	0	0	0	0.004	0.008	0.017	0	0.017	0.090
71.5	0	0	0.027	0	0	0	0.001	0	0	0.027	0.086
126.0	0	0	0	0.023	0	0	0.018	0	0	0.023	0.074
145.0	0	0	0	0.034	0	0	0	0	0	0.034	0.063
161.4	0.025	0.016	0.020	0.038	0.012	0	0.008	0.037	0.018	0.038	0.082
163.0	0.054	0.030	0.056	0.035	0.065	0	0.045	0.051	0.048	0.065	0.082
178.0	0	0	0	0	0.018	0	0	0	0	0.018	0.065
214.1	0	0	0	0	0	0	0	0	0	0	0.029
280.0	0	0	0	0	0	0	0	0	0	0	0.005
298.0	0	0	0	0	0	0	0	0	0	0	0.005
311.8	0	0	0	0	0	0	0	0	0	0	0.003

STATION (IN)	MATERIAL DECOMPOSITION RATE (MDR) MILS / SECOND										EXPOSURE TIME
	0.0	46.0	90.0	136.0	180.0	226.0	270.0	316.0	AVE.		
3.5	1.9	1.7	1.4	2.2	1.1	1.5	1.4	1.9	1.6	111.7	
11.0	1.8	1.2	0.6	1.0	1.3	2.1	2.6	1.5	1.5	97.3	
30.7	2.4	2.0	1.6	1.6	2.7	2.3	1.9	2.3	2.1	47.9	
36.2	2.5	2.1	0.6	1.7	1.5	1.2	1.3	1.9	1.6	33.1	
44.6	0	0	0	0	0	0.3	0.6	1.3	0.3	12.8	
71.5	0	0	2.5	0	0	0	0.1	0	0.3	11.0	
126.0	0	0	0	2.4	0	0	1.9	0	0.5	9.6	
145.0	0	0	0	4.2	0	0	0	0	0.5	8.0	
161.4	2.3	1.5	1.9	3.5	1.1	0	0.7	3.4	1.8	10.8	
163.0	5.0	2.8	5.2	3.2	6.0	0	4.2	4.7	3.9	10.8	
178.0	0	0	0	0	2.5	0	0	0	0.3	7.2	
214.1	0	0	0	0	0	0	0	0	0	7.2	
280.0	0	0	0	0	0	0	0	0	0	4.2	
298.0	0	0	0	0	0	0	0	0	0	4.0	
311.8	0	0	0	0	0	0	0	0	0	3.4	

MOTOR ACTION TIME = 122.9 SECONDS

Table E-IX. RSRM-29B Forward Center Segment Insulation Performance (Cont.)

COMPLIANCE SAFETY FACTOR (CSF)									
STATION (IN)	DEGREE LOCATIONS								REQUIRED S.F.
	0.0	46.0	90.0	136.0	180.0	226.0	270.0	316.0	
3.5	10.24	11.10	13.25	8.48	17.24	12.93	13.25	10.14	2.0
11.0	11.05	15.97	30.65	18.63	15.20	9.45	7.60	13.38	1.5
30.7	6.73	8.06	10.05	9.21	6.09	6.91	8.51	7.10	1.5
36.2	7.23	8.57	28.57	10.53	11.76	14.63	14.29	9.37	1.5
44.6	+	+	+	+	+	90.00	45.00	21.18	1.5
71.5	+	+	6.30	+	+	+	+	6.30	1.5
126.0	+	+	+	6.52	+	+	8.33	+	1.5
145.0	+	+	+	4.41	+	+	+	4.41	1.5
161.4	9.44	14.75	11.80	6.21	19.67	+	29.50	6.38	2.0
163.0	4.37	7.87	4.21	6.74	3.63	+	5.24	4.63	2.0
178.0	+	+	+	+	7.22	+	+	7.22	1.5
214.1	+	+	+	+	+	+	+	+	1.5
280.0	+	+	+	+	+	+	+	+	1.5
298.0	+	+	+	+	+	+	+	+	1.5
311.8	+	+	+	+	+	+	+	+	1.5

SEGMENT MINIMUM = 3.63 AT THE 163.0 INCH STATION
A " + " MEANS NEGLIGIBLE MDD HAS OCCURRED

ACTUAL SAFETY FACTOR (ASF)									
STATION (IN)	DEGREE LOCATIONS								REQUIRED S.F.
	0.0	46.0	90.0	136.0	180.0	226.0	270.0	316.0	
3.5	13.12	14.70	17.01	11.09	22.16	16.30	17.16	13.18	2.0
11.0	13.87	20.05	38.26	23.74	19.22	12.05	9.96	17.08	1.5
30.7	7.23	8.71	11.03	9.90	6.56	7.40	9.27	7.71	1.5
36.2	9.41	11.31	37.90	13.98	15.51	19.12	18.83	12.34	1.5
44.6	+	+	+	+	+	92.75	45.87	21.53	1.5
71.5	+	+	7.59	+	+	+	+	7.59	1.5
126.0	+	+	+	7.43	+	+	9.44	+	1.5
145.0	+	+	+	5.12	+	+	+	5.12	1.5
161.4	21.72	34.44	26.40	14.63	43.50	+	68.00	15.24	2.0
163.0	10.19	18.33	9.82	15.71	8.46	+	12.22	10.78	2.0
178.0	+	+	+	+	11.17	+	+	11.17	1.5
214.1	+	+	+	+	+	+	+	+	1.5
280.0	+	+	+	+	+	+	+	+	1.5
298.0	+	+	+	+	+	+	+	+	1.5
311.8	+	+	+	+	+	+	+	+	1.5

SEGMENT MINIMUM = 5.12 AT THE 145.0 INCH STATION
A " + " MEANS NEGLIGIBLE MDD HAS OCCURRED

Table E-X. RSRM-29B Forward Segment Star Tip Insulation Performance

MATERIAL DECOMPOSITION DEPTH (HDD) INCHES						MATERIAL DECOMPOSITION RATE (MDR) MILS / SECOND										
STATION (IN)	90.0	154.0	222.0	286.0	352.0	MEDIAN	MAX.	DESIGN M+3S	STATION (IN)	90.0	154.0	222.0	286.0	352.0	AVE.	EXPOSURE TIME
3.5	0.004	0.022	0.015	0.039	0.054	0.022	0.054	0.103	3.5	0.1	0.6	0.4	1.1	1.6	0.8	34.3
13.0	0.041	0.090	0.018	0.009	0	0.018	0.090	0.101	13.0	2.1	4.7	0.9	0.5	0	1.6	19.3
27.0	0	0	0	0	0	0	0	0.044	27.0	0	0	0	0	0	0	4.8
44.0	0	0	0	0	0	0	0	0.015	44.0	0	0	0	0	0	0	3.0
60.0	0	0	0	0	0	0	0	0.012	60.0	0	0	0	0	0	0	1.4
94.7	0	0	0	0	0	0	0	0.004	94.7	0	0	0	0	0	0	0.8
142.0	0	0	0	0	0	0	0	0.019	142.0	0	0	0	0	0	0	1.0
152.0	0.049	0.048	0.027	0.025	0.034	0.034	0.049	0.133	152.0	1.5	1.5	0.8	0.8	1.0	1.1	32.5
162.0	0.100	0.144	0.069	0.119	0.105	0.105	0.144	0.227	162.0	1.7	2.5	1.2	2.1	1.8	1.9	57.8
175.5	0.132	0.123	0.123	0.165	0.163	0.132	0.165	0.324	175.5	1.5	1.4	1.4	1.9	1.8	1.6	89.0
187.0	0.229	0.171	0.212	0.189	0.191	0.191	0.229	0.348	187.0	2.3	1.7	2.1	1.9	1.9	2.0	101.7
199.0	0.175	0.267	0.202	0.201	0.256	0.202	0.267	0.427	199.0	1.7	2.6	2.0	2.0	2.5	2.2	101.7
213.0	0.213	0.223	0.166	0.189	0.207	0.207	0.223	0.433	213.0	2.1	2.2	1.6	1.9	2.0	2.0	101.7
224.0	0.219	0.178	0.107	0.162	0.216	0.178	0.219	0.422	224.0	2.2	1.8	1.1	1.6	2.1	1.7	101.7
230.0	0.218	0.221	0.168	0.209	0.200	0.209	0.221	0.375	230.0	2.1	2.2	1.7	2.1	2.0	2.0	101.7
236.0	0.197	0.155	0.175	0.184	0.201	0.184	0.201	0.327	236.0	1.9	1.5	1.7	1.8	2.0	1.8	101.7
240.0	0.202	0.201	0.205	0.209	0.196	0.202	0.209	0.342	240.0	2.0	2.0	2.0	2.1	1.9	2.0	101.7
254.0	0.185	0.234	0.206	0.196	0.195	0.196	0.234	0.318	254.0	1.8	2.3	2.0	1.9	1.9	2.0	101.7
263.0	0.217	0.208	0.211	0.171	0.215	0.211	0.217	0.334	263.0	2.1	2.0	2.1	1.7	2.1	2.0	101.7
282.0	0.208	0.260	0.170	0.166	0.227	0.208	0.260	0.349	282.0	2.0	2.6	1.7	1.6	2.2	2.0	101.7
293.0	0.205	0.177	0.159	0.138	0.164	0.164	0.205	0.393	293.0	2.0	1.7	1.6	1.4	1.6	1.7	101.7
305.0	0.225	0.178	0.257	0.186	0.186	0.186	0.237	0.309	305.0	2.2	1.8	2.5	1.8	1.8	2.0	101.7
312.0	0.145	0.228	0.185	0.168	0.196	0.185	0.228	0.308	312.0	1.4	2.2	1.8	1.7	1.9	1.8	101.7
321.0	0.233	0.292	0.381	0.338	0.216	0.292	0.381	0.434	321.0	2.2	2.8	3.7	3.3	2.1	2.8	103.9
339.0	0.161	0.163	0.145	0.152	0.195	0.161	0.195	0.319	339.0	1.6	1.6	1.4	1.5	1.9	1.6	100.3
350.0	0.178	0.116	0.154	0.164	0.165	0.164	0.178	0.300	350.0	1.8	1.2	1.5	1.6	1.6	1.6	100.1
362.0	0.192	0.180	0.208	0.186	0.185	0.186	0.208	0.285	362.0	1.9	1.8	2.1	1.9	1.9	1.9	99.1
371.0	0.125	0.176	0.171	0.171	0.224	0.171	0.224	0.304	371.0	1.3	1.9	1.8	1.8	2.4	1.8	94.7
383.0	0.205	0.194	0.155	0.213	0.130	0.194	0.213	0.295	383.0	2.1	2.0	1.6	2.2	1.4	1.9	95.9
397.0	0.158	0.150	0.255	0.237	0.183	0.183	0.235	0.287	397.0	1.6	1.5	2.5	2.4	1.8	2.0	100.1
403.0	0.198	0.196	0.164	0.175	0.205	0.196	0.205	0.287	403.0	1.6	1.6	1.3	1.4	1.7	1.5	122.9

MOTOR ACTION TIME = 122.9 SECONDS

Table E-X. RSRM-29B Forward Segment Star Tip Insulation Performance

COMPLIANCE SAFETY FACTOR (CSF)						ACTUAL SAFETY FACTOR (ASF)										
STATION (IN)	DEGREE LOCATIONS					MIN.	PLANE	REQUIRED S.F.	STATION (IN)	DEGREE LOCATIONS					MIN.	PLANE
	90.0	154.0	222.0	286.0	352.0					90.0	154.0	222.0	286.0	352.0		
3.5	+	96.36	+	54.36	39.26	39.26	352.0	2.0	3.5	+	+	+	63.97	45.02	45.02	352.0
13.0	15.85	7.22	36.11	72.22	+	7.22	154.0	1.5	13.0	21.41	10.51	49.28	96.00	+	10.51	154.0
27.0	+	+	+	+	+	+	90.0	1.5	27.0	+	+	+	+	+	+	90.0
44.0	+	+	+	+	+	+	90.0	1.5	44.0	+	+	+	+	+	+	90.0
60.0	+	+	+	+	+	+	90.0	1.5	60.0	+	+	+	+	+	+	90.0
94.7	+	+	+	+	+	+	90.0	1.5	94.7	+	+	+	+	+	+	90.0
142.0	+	+	+	+	+	+	90.0	1.5	142.0	+	+	+	+	+	+	90.0
152.0	6.47	6.60	11.74	12.68	9.32	6.47	90.0	1.5	152.0	7.41	7.58	13.00	14.36	10.32	7.41	90.0
162.0	5.47	3.80	7.93	4.60	5.21	3.80	154.0	2.0	162.0	7.47	5.22	10.54	6.13	7.02	5.22	154.0
175.5	4.58	4.91	4.91	3.66	3.71	3.66	286.0	1.5	175.5	5.38	5.75	5.80	4.41	4.36	4.36	352.0
187.0	2.79	3.74	3.02	3.39	3.35	2.79	90.0	1.5	187.0	2.87	3.77	3.01	3.57	3.38	2.87	90.0
199.0	3.90	2.56	3.38	3.40	2.67	2.56	154.0	1.5	199.0	4.25	3.07	3.55	3.59	2.85	2.85	352.0
213.0	3.18	3.04	4.08	3.58	3.27	3.04	154.0	1.5	213.0	3.46	3.32	4.35	3.88	3.51	3.32	154.0
224.0	3.09	3.80	6.33	4.18	3.13	3.09	90.0	1.5	224.0	3.51	4.19	6.72	4.80	3.55	3.51	90.0
230.0	3.11	3.06	4.03	3.24	3.38	3.06	154.0	1.5	230.0	3.38	3.33	4.40	3.47	3.69	3.33	154.0
236.0	2.93	3.73	3.30	3.14	2.88	2.88	352.0	1.5	236.0	3.47	4.07	3.67	3.49	3.24	3.24	352.0
240.0	2.84	2.86	2.80	2.75	2.93	2.75	286.0	1.5	240.0	3.37	3.24	3.14	3.10	3.33	3.10	286.0
254.0	3.07	2.43	2.76	2.90	2.91	2.43	154.0	1.5	254.0	3.14	2.50	2.79	2.92	2.96	2.50	154.0
263.0	2.62	2.73	2.69	3.32	2.64	2.62	90.0	1.5	263.0	2.73	2.79	2.74	3.40	2.70	2.70	352.0
282.0	2.73	2.18	3.34	3.42	2.50	2.18	154.0	1.5	282.0	3.10	2.59	3.75	3.91	2.85	2.59	154.0
293.0	2.66	3.08	3.43	3.96	3.33	2.66	90.0	1.5	293.0	3.01	3.39	3.83	4.45	3.77	3.01	90.0
305.0	2.33	2.95	2.04	2.82	2.82	2.04	222.0	1.5	305.0	2.80	3.50	2.81	3.33	3.35	2.80	90.0
312.0	3.73	2.37	2.92	3.22	2.76	2.37	154.0	1.5	312.0	4.50	3.14	3.47	3.71	3.29	3.14	154.0
321.0	3.94	3.14	2.41	2.72	4.25	2.41	222.0	2.0	321.0	4.42	3.66	2.65	3.13	4.75	2.65	222.0
339.0	3.42	3.38	3.80	3.62	2.83	2.83	352.0	1.5	339.0	3.68	3.74	4.17	3.74	3.42	3.42	352.0
350.0	2.94	4.51	3.40	3.19	3.17	2.94	90.0	1.5	350.0	3.25	4.99	4.00	3.70	3.64	3.25	90.0
362.0	2.71	2.89	2.50	2.80	2.81	2.50	222.0	1.5	362.0	3.14	3.31	3.03	3.28	3.14	3.03	222.0
371.0	4.16	2.95	3.04	3.04	2.32	2.32	352.0	1.5	371.0	4.72	3.53	3.53	3.67	2.95	2.95	352.0
383.0	2.49	2.63	3.30	2.40	3.93	2.40	286.0	1.5	383.0	2.90	3.16	3.74	2.72	4.38	2.72	286.0
397.0	3.18	3.35	1.97	2.12	2.75	1.97	222.0	1.5	397.0	3.72	3.95	2.45	2.58	3.48	2.45	222.0
403.0	4.80	4.85	5.79	5.43	4.63	4.63	352.0	1.5	403.0	5.38	5.45	6.55	6.21	5.45	5.38	90.0

CEMENT MINIMUM = 2.45 AT THE 197.0 INCH STATION

SEGMENT MINIMUM = 1.97 AT THE 397.0 INCH STATION

A " + " MEANS NEGLIGIBLE MDD HAS OCCURRED

Table E-XI. RSRM-29B Forward Segment Non-Star Tip Insulation Performance

PREFIRE MEASUREMENTS				POSTFIRE MEASUREMENTS				PART NO. 1U76666-02				PART NO. 1U76790-05			
INCHES				INCHES				SERIAL NO. 0000034				SERIAL NO. 0000011			
STATION (IN)	DEGREE LOCATIONS				MIN.	MEDIAN	MDT	STATION (IN)	DEGREE LOCATIONS				MIN.	MEDIAN	
	74.0	140.0	206.0	270.0					74.0	140.0	206.0	270.0			
3.5	2.451	2.430	2.463	2.481	2.396	2.451	2.120	3.5	2.349	2.391	2.379	2.389	2.321	2.379	
13.0	0.893	0.983	1.000	0.990	0.926	0.893	0.650	13.0	0.914	0.923	0.965	0.919	0.862	0.919	
27.0	0.574	0.585	0.565	0.575	0.585	0.575	0.450	27.0	L	L	L	L	L	0.575	
44.0	0.287	0.292	0.293	0.305	0.297	0.293	0.250	44.0	L	L	L	L	L	0.293	
60.0	0.137	0.140	0.140	0.138	0.137	0.140	0.100	60.0	L	L	L	L	L	0.140	
94.7	0.101	0.104	0.105	0.102	0.105	0.101	0.090	94.7	L	L	L	L	L	0.104	
142.0	0.164	0.160	0.160	0.161	0.161	0.160	0.113	142.0	L	L	L	L	L	0.161	
152.0	0.367	0.353	0.354	0.357	0.365	0.353	0.317	152.0	L	0.340	0.352	L	0.398	0.340	
162.0	0.756	0.752	0.731	0.734	0.740	0.731	0.547	162.0	0.683	0.625	0.660	0.664	0.679	0.625	
175.5	0.714	0.701	0.714	0.712	0.697	0.697	0.640	175.5	0.609	0.593	0.604	0.561	0.585	0.561	
187.0	0.649	0.645	0.654	0.647	0.642	0.642	0.683	187.0	0.487	0.519	0.524	0.516	0.483	0.483	
199.0	0.724	0.740	0.717	0.726	0.740	0.717	0.677	199.0	0.605	0.592	0.579	0.526	0.573	0.526	
213.0	0.781	0.751	0.754	0.774	0.767	0.751	0.677	213.0	0.605	0.620	0.597	0.616	0.630	0.597	
224.0	0.739	0.752	0.726	0.717	0.756	0.717	0.739	224.0	0.676	0.656	0.650	0.669	0.614	0.614	
230.0	0.704	0.656	0.632	0.643	0.682	0.632	0.578	230.0	0.633	0.612	0.608	0.613	0.621	0.608	
240.0	0.656	0.639	0.639	0.644	0.640	0.639	0.574	240.0	0.573	0.528	0.507	0.544	0.535	0.507	
254.0	0.580	0.573	0.570	0.586	0.581	0.570	0.568	254.0	0.569	0.531	0.545	0.561	0.541	0.531	
263.0	0.582	0.584	0.582	0.595	0.581	0.581	0.568	263.0	0.475	0.490	0.465	0.473	0.468	0.465	
282.0	0.623	0.619	0.616	0.605	0.618	0.605	0.546	282.0	0.486	0.470	0.468	0.462	0.457	0.457	
293.0	0.638	0.619	0.623	0.626	0.637	0.619	0.525	293.0	0.544	0.542	0.556	0.530	0.558	0.530	
305.0	0.677	0.627	0.639	0.637	0.675	0.627	0.541	305.0	0.506	0.508	0.516	0.462	0.519	0.462	
312.0	0.999	1.053	1.015	1.088	1.125	0.999	0.918	312.0	0.528	0.536	0.510	0.510	0.540	0.510	
339.0	0.615	0.571	0.578	0.636	0.578	0.571	0.551	339.0	0.528	0.530	0.530	0.526	0.619	0.526	
350.0	0.578	0.576	0.578	0.583	0.588	0.576	0.523	350.0	0.880	0.924	0.876	0.936	0.989	0.876	
362.0	0.590	0.576	0.588	0.600	0.620	0.590	0.520	362.0	0.461	0.445	0.492	0.545	0.477	0.445	
371.0	0.606	0.600	0.609	0.594	0.604	0.594	0.511	371.0	0.409	0.445	0.448	0.479	0.471	0.409	
383.0	0.585	0.602	0.602	0.594	0.581	0.581	0.503	383.0	0.436	0.374	0.439	0.430	0.454	0.374	
397.0	0.584	0.607	0.647	0.596	0.593	0.584	0.503	397.0	0.419	0.463	0.402	0.446	0.447	0.402	
403.0	1.073	1.068	1.060	1.076	1.107	1.060	0.950	403.0	0.404	0.396	0.401	0.432	0.419	0.396	
									0.419	0.437	0.419	0.419	0.412	0.412	
									0.855	0.874	0.894	0.875	0.915	0.855	

AN "L" INDICATES THAT LINER MATERIAL WAS REMAINING AT THAT LOCATION.
THE MEDIAN AND MINIMUM VALUES WERE CALCULATED USING THE PREFIRE THICKNESSES
AT THE LOCATIONS WHERE LINER MATERIAL WAS REMAINING

Table E-XI. RSRM-29B Fwd Segment Non-Star Tip Insulation Performance (Cont.)

STATION (IN)	MATERIAL DECOMPOSITION DEPTH (MDD) INCHES					DESIGN M+35	STATION (IN)	MATERIAL DECOMPOSITION RATE (MDR) MILS / SECOND					AVE.	EXPOSURE TIME
	74.0	140.0	206.0	270.0	336.0			74.0	140.0	206.0	270.0	336.0		
3.5	0.102	0.039	0.084	0.092	0.075	0.103	3.5	3.0	1.1	2.4	2.7	2.2	2.3	34.3
13.0	0	0.060	0.035	0.071	0.064	0.101	13.0	0	3.1	1.8	3.7	3.3	2.4	19.3
27.0	0	0	0	0	0	0.044	27.0	0	0	0	0	0	0	4.8
44.0	0	0	0	0	0	0.015	44.0	0	0	0	0	0	0	3.0
60.0	0	0	0	0	0	0.012	60.0	0	0	0	0	0	0	1.4
94.7	0	0	0	0	0	0.004	94.7	0	0	0	0	0	0	0.8
142.0	0	0	0	0	0	0.019	142.0	0	0	0	0	0	0	1.0
152.0	0	0.013	0.002	0	0	0.123	152.0	0	0.6	0.1	0	0	0.1	20.7
162.0	0.073	0.127	0.071	0.070	0.061	0.127	162.0	1.6	2.9	1.6	1.6	1.4	1.8	44.3
175.5	0.105	0.108	0.110	0.151	0.112	0.324	175.5	1.5	1.6	2.2	1.6	1.6	1.7	68.2
187.0	0.162	0.126	0.130	0.131	0.159	0.398	187.0	2.4	1.9	2.0	2.0	2.4	2.1	66.4
199.0	0.119	0.148	0.138	0.200	0.167	0.427	199.0	1.8	2.2	2.1	3.0	2.5	2.3	66.4
213.0	0.140	0.110	0.120	0.105	0.112	0.423	213.0	2.1	1.7	1.8	1.6	1.7	1.8	66.4
224.0	0.105	0.095	0.104	0.105	0.153	0.422	224.0	1.6	1.4	1.6	1.6	2.3	1.7	66.4
230.0	0.106	0.140	0.118	0.104	0.135	0.375	230.0	1.6	2.1	1.8	1.6	2.0	1.8	66.4
236.0	0.131	0.128	0.125	0.099	0.147	0.327	236.0	2.0	1.9	1.9	1.5	2.2	1.9	66.4
240.0	0.087	0.108	0.094	0.083	0.099	0.342	240.0	1.3	1.6	1.4	1.3	1.5	1.4	66.4
254.0	0.105	0.083	0.105	0.113	0.113	0.318	254.0	1.6	1.3	1.6	1.7	1.7	1.6	66.4
263.0	0.096	0.114	0.114	0.133	0.124	0.334	263.0	1.4	1.7	1.7	2.0	1.9	1.8	66.4
282.0	0.114	0.102	0.133	0.114	0.091	0.349	282.0	1.7	1.5	2.0	1.7	1.4	1.7	66.4
293.0	0.117	0.111	0.100	0.143	0.099	0.330	293.0	1.8	1.7	1.5	2.2	1.5	1.7	66.4
305.0	0.110	0.083	0.113	0.116	0.097	0.309	305.0	1.7	1.3	1.7	1.7	1.5	1.6	66.4
312.0	0.149	0.097	0.109	0.111	0.056	0.308	312.0	2.2	1.5	1.6	1.7	0.8	1.6	66.4
321.0	0.119	0.129	0.139	0.152	0.136	0.434	321.0	1.7	1.8	2.0	2.1	1.9	1.9	70.8
339.0	0.154	0.126	0.086	0.091	0.101	0.319	339.0	2.1	1.7	1.7	1.2	1.4	1.5	72.8
350.0	0.169	0.131	0.130	0.104	0.117	0.300	350.0	2.2	1.7	1.7	1.4	1.5	1.7	76.6
362.0	0.154	0.202	0.149	0.170	0.166	0.285	362.0	1.9	2.5	1.8	2.1	2.0	2.1	81.6
371.0	0.187	0.137	0.207	0.148	0.157	0.304	371.0	2.3	1.7	2.5	1.8	1.9	2.0	82.0
383.0	0.181	0.206	0.201	0.162	0.162	0.295	383.0	2.0	2.3	2.2	1.8	1.8	2.0	89.4
397.0	0.165	0.170	0.228	0.177	0.181	0.287	397.0	1.7	1.7	2.3	1.8	1.9	1.9	97.5
403.0	0.218	0.194	0.166	0.201	0.192	0.287	403.0	1.8	1.6	1.4	1.6	1.6	1.6	122.9

MOTOR ACTION TIME = 122.9 SECONDS

Table E-XI. RSRM-29B Forward Segment N0n-Star Tip Insulation Performance

COMPLIANCE SAFETY FACTOR (CSF)							ACTUAL SAFETY FACTOR (ASF)									
STATION (IN)	DEGREE LOCATIONS					MIN.	PLANE	REQUIRED S.F.	STATION (IN)	DEGREE LOCATIONS					MIN.	PLANE
	74.0	140.0	206.0	270.0	336.0					74.0	140.0	206.0	270.0	336.0		
3.5	20.78	54.36	25.24	23.04	28.27	20.78	74.0	2.0	3.5	24.03	62.31	29.32	26.97	31.95	24.03	74.0
13.0	+	10.83	18.57	9.15	10.16	9.15	270.0	1.5	13.0	+	16.38	28.57	13.94	14.47	13.94	270.0
27.0	+	+	+	+	+	+	74.0	1.5	27.0	+	+	+	+	+	+	74.0
44.0	+	+	+	+	+	+	74.0	1.5	44.0	+	+	+	+	+	+	74.0
60.0	+	+	+	+	+	+	74.0	1.5	60.0	+	+	+	+	+	+	74.0
94.7	+	+	+	+	+	+	74.0	1.5	94.7	+	+	+	+	+	+	74.0
142.0	+	+	+	+	+	+	74.0	1.5	142.0	+	+	+	+	+	+	74.0
152.0	+	24.38	+	+	+	24.38	140.0	1.5	152.0	+	27.15	+	+	+	27.15	140.0
162.0	7.49	4.31	7.70	7.81	8.97	4.31	140.0	2.0	162.0	10.36	5.92	10.30	10.49	12.13	5.92	140.0
175.5	5.75	5.59	5.49	4.00	5.39	4.00	270.0	1.5	175.5	6.80	6.49	6.49	4.72	6.22	4.72	270.0
187.0	3.95	5.08	4.92	4.89	4.03	3.95	74.0	1.5	187.0	4.01	5.12	5.03	4.94	4.04	4.01	74.0
199.0	5.74	4.61	4.95	3.42	4.09	3.42	270.0	1.5	199.0	6.08	5.00	5.20	3.63	4.43	3.63	270.0
213.0	4.84	6.15	5.64	6.45	6.04	4.84	74.0	1.5	213.0	5.32	6.64	5.97	6.87	6.63	5.32	74.0
224.0	6.45	7.13	6.51	6.45	4.42	4.42	336.0	1.5	224.0	7.44	7.91	7.25	7.37	5.01	5.01	336.0
230.0	6.39	4.84	5.74	6.51	5.01	4.84	140.0	1.5	230.0	6.97	5.37	6.15	6.89	5.60	5.37	140.0
236.0	4.41	4.52	4.62	5.84	3.93	3.93	336.0	1.5	236.0	5.37	5.12	5.06	6.49	4.64	4.64	336.0
240.0	6.60	5.31	6.11	6.92	5.80	5.31	140.0	1.5	240.0	7.54	5.92	6.80	7.76	6.46	5.92	140.0
254.0	5.41	6.84	5.41	5.03	5.03	5.03	270.0	1.5	254.0	5.52	6.90	5.43	5.19	5.14	5.14	336.0
263.0	5.92	4.98	4.98	4.27	4.58	4.27	270.0	1.5	263.0	6.06	5.12	5.11	4.47	4.69	4.47	270.0
282.0	4.98	5.57	4.27	4.98	6.24	4.27	206.0	1.5	282.0	5.77	6.31	5.18	5.65	7.13	5.18	206.0
293.0	4.67	4.92	5.46	3.82	5.52	3.82	270.0	1.5	293.0	5.32	5.58	6.16	4.23	6.24	4.23	270.0
305.0	4.77	6.33	4.65	4.53	5.41	4.53	270.0	1.5	305.0	5.80	7.46	5.51	5.40	6.57	5.40	270.0
312.0	3.63	5.58	4.96	4.87	9.66	3.63	74.0	1.5	312.0	4.54	6.46	5.86	5.74	12.05	4.54	74.0
321.0	7.71	7.12	6.60	6.04	6.75	6.04	270.0	2.0	321.0	8.39	8.16	7.30	7.16	8.27	7.16	270.0
339.0	3.58	4.37	6.41	6.05	5.46	3.58	74.0	1.5	339.0	3.99	4.53	6.72	6.99	5.72	3.99	74.0
350.0	3.09	3.99	4.02	5.03	4.47	3.09	74.0	1.5	350.0	3.42	4.40	4.45	5.61	5.03	3.42	74.0
362.0	3.38	2.57	3.49	3.06	3.13	2.57	140.0	1.5	362.0	3.83	2.85	3.95	3.53	3.73	2.85	140.0
371.0	2.78	3.80	2.51	3.51	3.31	2.51	206.0	1.5	371.0	3.24	4.38	2.94	4.01	3.85	2.94	206.0
383.0	2.82	2.48	2.54	3.15	3.15	2.48	140.0	1.5	383.0	3.23	2.92	3.00	3.67	3.59	2.92	140.0
397.0	3.05	2.96	2.21	2.84	2.78	2.21	206.0	1.5	397.0	3.54	3.57	2.84	3.37	3.28	2.84	206.0
403.0	4.36	4.90	5.72	4.73	4.95	4.36	74.0	1.5	403.0	4.92	5.51	6.39	5.35	5.77	4.92	74.0

SEGMENT MINIMUM = 2.21 AT THE 397.0 INCH STATION

SEGMENT MINIMUM = 2.84 AT THE 397.0 INCH STATION

1 " + " MEANS NEGLIGIBLE MDD HAS OCCURRED

SEGMENT MINIMUM = 2.84 AT THE 397.0 INCH STATION

SEGMENT MINIMUM = 2.21 AT THE 397.0 INCH STATION
A " + " MEANS NEGLIGIBLE MDD HAS OCCURRED

Table E-XII. RSRM-29A Igniter Chamber and Adapter Insulation Performance

MATERIAL DECOMPOSITION DEPTH (MDD) (INCHES)									
STATION (NO.)	0.0	60.0	90.0	150.0	180.0	240.0	270.0	330.0	MAXIMUM
1.0									
2.0									
3.0									
4.0									
5.0									
6.0									
7.0									
8.0									
9.0									
10.0									
11.0	0.148	0.150	0.159	0.158	0.165	0.150	0.143	0.151	0.165

A BLANK INDICATES NO DATA AVAILABLE FOR THAT STATION

MATERIAL DECOMPOSITION RATE (MDR) (MILS/SEC)									
STATION (NO.)	0.0	60.0	90.0	150.0	180.0	240.0	270.0	330.0	AVERAGE
1.0									
2.0									
3.0									
4.0									
5.0									
6.0									
7.0									
8.0									
9.0									
10.0									
11.0	1.2	1.2	1.3	1.3	1.3	1.2	1.2	1.2	1.2

MOTOR ACTION (EXPOSURE) TIME = 122.90 SEC

A MDR=0 INDICATES THAT MDR < .1 MIL/SEC

A BLANK INDICATES NO DATA AVAILABLE FOR THAT STATION

Table E-XII. RSRM-29A Igniter Chamber and Adapter Insulation Performance (Cont.)

COMPLIANCE SAFETY FACTORS (CSF)							
STATION (NO.)	0.0	60.0	90.0	150.0	180.0	240.0	270.0 330.0 MINIMUM PLANE
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							
7.0							
8.0							
9.0							
10.0							
11.0	3.05	3.01	2.84	2.86	2.74	3.01	3.16 2.99 2.74 180.0

SF= + INDICATES THAT NEGLIGIBLE MDD OCCURRED

A BLANK INDICATES NO DATA AVAILABLE FOR THAT STATION

ACTUAL SAFETY FACTORS (ASF)							
STATION (NO.)	0.0	60.0	90.0	150.0	180.0	240.0	270.0 330.0 MINIMUM PLANE
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							
7.0							
8.0							
9.0							
10.0							
11.0	3.65	3.60	3.40	3.42	3.27	3.60	3.78 3.58 3.27 180.0

SF= + INDICATES THAT NEGLIGIBLE MDD OCCURRED

A BLANK INDICATES NO DATA AVAILABLE FOR THAT STATION

Table E-XIII. RSRM-29B Igniter Chamber and Adapter Insulation Performance

STATION (NO.)	MATERIAL DECOMPOSITION DEPTH (MDD) (INCHES)					DEGREE LOCATION			MEDIAN	MAXIMUM
	0.0	60.0	90.0	150.0	180.0	240.0	270.0	330.0		
1.0										
2.0										
3.0										
4.0										
5.0										
6.0										
7.0										
8.0										
9.0										
10.0										
11.0	0.150	0.149	0.145	0.148	0.141	0.137	0.150	0.164	0.149	0.164

A BLANK INDICATES NO DATA AVAILABLE FOR THAT STATION

STATION (NO.)	MATERIAL DECOMPOSITION RATE (MDR) (MILS/SEC)					DEGREE LOCATION			AVERAGE
	0.0	60.0	90.0	150.0	180.0	240.0	270.0	330.0	
1.0									
2.0									
3.0									
4.0									
5.0									
6.0									
7.0									
8.0									
9.0									
10.0									
11.0	1.2	1.2	1.2	1.2	1.1	1.1	1.2	1.3	1.2

MOTOR ACTION (EXPOSURE) TIME = 122.90 SEC

A MDR=0 INDICATES THAT MDR < .1 MIL/SEC

A BLANK INDICATES NO DATA AVAILABLE FOR THAT STATION

Table E-XIII. RSRM-29B Igniter Chamber and Adapter Insulation Performance (Cont.)

COMPLIANCE SAFETY FACTORS (CSF)							
STATION (NO.)	0.0	60.0	90.0	150.0	180.0	240.0	270.0 330.0 MINIMUM PLANE
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							
7.0							
8.0							
9.0							
10.0							
11.0	3.01	3.03	3.12	3.05	3.21	3.30	3.01 2.76 330.0

SF= + INDICATES THAT NEGLIGIBLE MDD OCCURRED

A BLANK INDICATES NO DATA AVAILABLE FOR THAT STATION

ACTUAL SAFETY FACTORS (ASF)							
STATION (NO.)	0.0	60.0	90.0	150.0	180.0	240.0	270.0 330.0 MINIMUM PLANE
1.0							
2.0							
3.0							
4.0							
5.0							
6.0							
7.0							
8.0							
9.0							
10.0							
11.0	3.60	3.62	3.72	3.65	3.83	3.94	3.60 3.29 330.0

SF= + INDICATES THAT NEGLIGIBLE MDD OCCURRED

A BLANK INDICATES NO DATA AVAILABLE FOR THAT STATION